

Equitable land-use policy? Indigenous peoples' resistance to mining-induced deforestation

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ARTICLE INFO

Keywords:

Forest policy
Mining-induced deforestation
Indigenous Peoples and Local Communities (IPLCs)
Rights-based approach
Resistance
Self-governance

ABSTRACT

India's centralized mining of sub-soil minerals is rapidly changing the forested landscapes. This empirical research examines two interrelated questions: how do Indigenous Peoples perceive centralized mining affecting their traditional forest rights, and what are some of the community-led initiatives to address mining governance and forest policy? Two aspects of the rights-based approach on the extreme continuum – Free Prior and Informed Consent (FPIC) and social movements – are used for analyzing three ethnographic case studies each from India's top three mining states, Chhattisgarh, Jharkhand, and Odisha. The forested landscapes are inhabited by a million ethnically diverse Indigenous Peoples also known as Scheduled Tribes or Adivasis, often devoid of formal recognition. The Oraon, Pando, Paudi Bhuniya, and Munda Indigenous communities face the consequences of mining-induced deforestation on their livelihoods and are excluded from land-use decisions before and after extractions. The findings compare diverse forms of social movements seeking decentralized mining and community-based forest governance. Key recommendations from the Indigenous communities for inclusive forest and land-use policy are illuminated in the conclusion.

1. Background

Mining in the forested landscapes is a major cause of social unrest in low or lower-middle-income countries, particularly in tropical regions (Bradley, 2020). In 2021, the net profit of the 40 leading companies in the global mining industry was approximately 159 billion U.S. dollars, which is a big jump from 61 billion U.S. dollars in 2017.¹ This has been regarded as a profitable year due to an increase in commodity prices.² On the other hand, high commodity prices due to the fast expansion of extractive industries have been accompanied by increasing conflicts (Niederberger et al., 2016; Christensen, 2019). Butsic et al. (2015) show a correlation between violent conflict and expanding mining concessions in the Democratic Republic of Congo, home to the second-largest tropical forest in the world, that threatens the country's forest. In the Brazilian Amazon, between 2005 and 2015, mining significantly increased forest loss up to 70 km beyond mining lease boundaries causing 11,670 square km of deforestation (Sonter et al., 2017).

The World Bank and the International Council on Mining and Metals' report on the future of the renewable energy sector mentions that 'non-renewable mineral resources play a dominant role in 81 countries that

collectively account for a quarter of world GDP, half of the world's population and nearly 70% of those in extreme poverty' (World Bank and International Council on Mining and Metals, 2017; p. xiii). However, the report disregards the impact of mining-induced deforestation on Indigenous Peoples (IPs). Studies have shown that the expansion of mining activities has displaced and alienated Indigenous communities from their land and further contributed directly to the destruction of the cultures and forests they inhabit (See Gordon and Webber, 2007; Munarriz, 2008; Bernaz, 2013; Wyatt, 2012; Kujur et al., 2020). Good or weak governance determines the implications of how the benefits flow or not to the most marginalized in society (Edwards et al., 2014; Sonter et al., 2017). Kaimowitz and Tomaselli (2020: 278) explain that globally, new policies have successfully limited deforestation, but where the policies have failed to meet the expectations, it is mainly due to three 'wicked characteristics': policies undermine the power of elites, challenging to guide without communities' own collective action, and challenge to adapt generic policies to diverse local scenarios. Some of the successful drivers of policies have emerged from bottom-up (e.g., social movements), while others it has been top-down (e.g., international tools like FPIC).

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¹ <http://www.miningweekly.com/article/top-global-miners-profits-to-rise-to-76bn-in-2018-2018-06-05>

² <https://www.businessinsider.com/the-global-mining-industry-had-a-us48-billion-turnaround-in-2016-2017-6?IR=T>

1.1. India's indigenous peoples, forests, and land-use

In India, a study by [Ranjan \(2019\)](#) asserts districts with coal, iron, and limestone mining have contributed an average of 450 km² higher forest cover loss, most of these forests have forest-dependent Indigenous Peoples. Adivasis comprise 100 million or 8.6% of India's population of whom a majority are in forested landscapes living below the poverty line. In this paper, the term Indigenous Peoples will be used synonymously for Adivasis, who are the original inhabitants and administratively recognized as Scheduled Tribes of India. There are about 400 ethnic and linguistically diverse groups surpassing the largest Indigenous population of any nation in the world. In addition, the Constitution of India, provides a special governance mechanism to the Scheduled Areas, areas with a high percentage of Indigenous Peoples. There are 51 districts where the entire district has been declared a scheduled area. The tragedy is that almost 90% of all mineral wealth generated in the country is obtained from scheduled areas, Indigenous Peoples disproportionately bear the burden of this economic development rarely benefitting from it ([Wahi and Bhatia, 2018](#)).

In 2006, the Scheduled Tribes and Other Traditional Forest Dwellers Recognition of Forest Rights Act (henceforth, FRA) recognized their right to farm in the forest land – individual forest rights – as well as part of community forest rights to collect non-timber forest products, use grazing land, while community resource rights entitle them collectively to protect and manage forest resources. This legislation grants the Gram Panchayat which is a democratically elected body at the village level, together with the Gram Sabha, which is the general assembly of all people of the village(s) – the decision-making power to consent for any project to be carried out in the forest. However, the FRA has benefitted mainly from individual forest land rights, rather than granting collective forest rights to the communities ([Bose, 2012a](#)). Non-timber forest products are livelihood sources, which also form one of the main sources of traditional wild edible food and nutrition for Indigenous Peoples ([Bose, 2020](#)). Almost half of the Indigenous Peoples, according to Tribal Health in India report, have moved out of their traditional habitat due to a decline in forest-related livelihood sources, displacement, and enforced migration due to mining and non-mining-related drivers of deforestation and lack of land tenure rights ([MoHFW, 2018](#)).

E-Green Watch estimates that until 2018, over 100,000 ha (ha) of forestland were diverted in the mineral-rich states of Odisha, Jharkhand, and Chhattisgarh mainly for 500 mining-related projects (see also [Bhattacharya, 2019](#)). In Chhattisgarh alone, between 1980 and 2003, the total forest land diverted for non-forest use was 170,000 ha of which 67% was for mining ([Government of India GoI, 2009](#)). The Union Ministry of Environment, Forest, and Climate Change (MoEFCC) is one of the important bodies to preserve natural resources and holds power over subsoil minerals in forest areas. In Jharkhand, the MoEFCC has asked for a 'reassessment of the sustainable mining plan', which the critics think is to facilitate mining in India's largest Sal (*Shorea robusta*) forest type of 82,000 ha ([Hindustan Times, 2020](#)).

Mining-induced deforestation has an impact on people and forested landscapes. It is linked to contamination of soil, air, and water due to the release of toxic mining waste, in addition to the loss of biodiversity and the overall deteriorating quality of ecosystem services. To compensate for the deforestation, the accumulated money from the Compensatory Afforestation Fund approximately US\$ 67 billion meant for 'afforestation' was released to the respective state forest department ([Hindustan Times, 2020](#)). The Compensatory Afforestation Fund, India amended its 1957 Mines and Minerals (Development and Regulation) Act in 2015. This led, in 2015, to the establishment of a district-level non-profit statutory 'Trust', the District Mineral Foundation. It aims to compensate those affected by mining-related operations and dispossessed from their traditional land.

Land dispossession is one of the key factors for the emergence of social movements declaring autonomy, which are often countered with sedition charges by the state as a form of repressive effort (see [Anwar,](#)

[2019](#)). Further, [Lahiri-Dutt :76\) \(2003\)](#), in studying informal coal mining in eastern India notes that 'the hegemony of the mining economy cannot avoid being the subject of conflict, and resistance is rooted in everyday material goals (not necessarily so-called trade unionism), rather than in a revolutionary consciousness'. Mining-triggered social movements in forested landscapes are a form of 'forest governmentality' ([Bose, 2012b](#)). Forest governmentality is an analytical lens using Foucault's notion of governmentality to argue that the history of Indigenous Peoples' subject-making and history of forest demarcation is important to understand their identity interlinked with forest governance ([Bose, 2012a](#); also see 'Environmentality' by [Agrawal, 2005](#)).

To this end, the study contributes toward a better understanding of how extractive activities inside forest areas impact individual and collective forest rights and livelihoods of traditional communities, and how resistance such as 'Pathalgarhi' movements or women's *dharms* (strikes) enable or impede forest governance in mining areas. The next section describes a rights-based rationale for Indigenous Peoples' Free Prior and Informed Consent (FPIC) and social movements as a framework. The third and fourth section describes the method and selection of the study areas for unique empirical case studies, followed by the sections on findings, and discussion with comparative analysis. A section on conclusion with key policy recommendations provided by the Indigenous Peoples applicable around the globe.

2. Rights-based approach

This section explores the two interconnected concepts that are on the opposite end of the continuum of the rights-based approach – a democratic multi-stakeholder dialogue for the FPIC decisions, and the other being local resistance encompassing various social movements, events, and discourses challenging existing power relations demanding negotiation and consent. In the conceptual analysis, the terms resistance and FPIC will not be overemphasized nor romanticized but rather presented as an insight into the depiction of an alternative vision by Indigenous Peoples about the traditional forest and land-use change.

A sociological approach toward human rights is evolving through the interaction of society and the state, and how some are marginalized and excluded from their rights and entitlements. The state has the authority to recognize rights through legislation, which is influenced by the people's movements claiming those rights. The people's movement outside the state ambit with a multi-stakeholder dialogue has led for example to formalized recognition of Free Prior and Informed Consent. While on the other side of the continuum, for social movements, it is either exclusion of rights, 'bureaucratic consent' where local communities' voice remains unheard, and/or lack of implementation of the FPIC leading to the social movements (see [Fig. 1](#)).

2.1. Free prior and informed consent (FPIC)

Building on growing protests by Indigenous Peoples and local communities around the globe, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) was adopted in 2007. Article 32 of UNDRIP mentions that states must consult with and obtain the Free Prior and Informed consent of Indigenous Peoples before approving any natural resource development project affecting them and their lands. The Free Prior and Informed Consent (and henceforth, FPIC) has been regarded as the fundamental human right of Indigenous Peoples to ensure socio-environmentally sustainable practices for mining operations. Importantly, FPIC is based on the recognition that Indigenous Peoples have a right to self-determination, including the determination of their development.

In 2005, the United Nations Permanent Forum on Indigenous Issues (UNPFII) endorsed each element of the FPIC. [Doyle and Carino \(2013\)](#) and [FAO, 2016](#), define the significance of each word of Free Prior and Informed Consent (FPIC) as follows: Free refers to consent obtained freely, without coercion, manipulation, or bribes. Prior means that

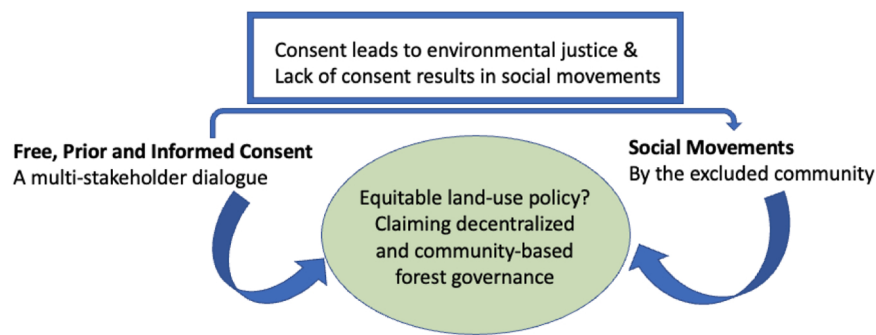


Fig. 1. Mining-induced deforestation and the rights-based approach.

consent is sought well in advance from the affected community of any authorization or commencement of activities. Informed highlights the nature of the engagement and that holistic information are to be provided before seeking consent and it should be part of the ongoing process. Most importantly, information should be delivered in the local language and a culturally appropriate format. The final word, consent, refers to the collective decision made by the right-holders involving the elder, women, and youths and the affected Indigenous Peoples and local communities after learning about the positive and negative short and long-term impacts of the proposed project activities.

In the mining sector, FPIC was first codified in the standards of financial investors, while in the forestry sector FPIC was part of competing for market-based certification schemes thereby having contrasting definitions of FPIC (Mahanty and McDermott, 2013). FPIC provides a guideline for the mining industry from the inception phase to the post-phasing out of extraction of natural resources in Indigenous territories (FAO, 2016).³ One of the biggest challenges is that FPIC is a voluntary guideline and for it to be successful largely remains how well the extractive industries along with the state comply with the standards of the FPIC involving the Indigenous Peoples and local communities.

2.2. Social movements

Social movement, on the other hand, is a complex term to describe in a single definition. Typical characteristics of social movement as Fuentes and Frank (1989) identify are that in the global south working class mainly from the unorganized sector are involved, they seek more autonomy and not state power, often they are defensive and temporary, and are important agents of social transformation. The nature, scope, and extent of social movement vary across space and time and threat to people's livelihood (Bebbington et al., 2008:3). Four basic common characteristics of social movements summarized by Sutton (2000) are that it is a collection of actors with unity in their activity; have a common identity; initiate mass mobilization to organize their concerns amongst non-committed citizens and have collective goals to bring change. Ray and Katzenstein (2005) argue that social movement as organized social forces that mobilized citizens for either confronting and/or cooperating with the state had been earlier associated with poverty and class struggle. Mobilized forces could be labor unions, mass organizations, non-governmental organizations, political parties, as well as protest-oriented movements. To illustrate, in Brazil, Chico Mendes' famous rubber tapper movement, the National Council of Rubber Tappers, led the government to create extractive reserves (Mendes, 1989). Over time gradual transformation of social movements, mainly in the industrialized world in the 21st century, have moved from the traditional poverty alleviation as a determining factor of political struggles, towards increasing women's participation, identity, and culture (Fuentes and Frank, 1989; Sutton, 2000).

The success of social movement varies depending on the mode of approach, political situation, history, strategy, resources, landscapes, multi-stakeholders, and duration of resistance. For example, in Peru's Conga mine, Newmont Mining Corp accepted that it had to shut down its \$5 billion copper and gold project after resistance from the local communities.⁴ It also depends on geographical, cultural, and political scenarios and notions of Indigenousness combined with environmental justice. For example, Niyamgiri Mountain in India's Odisha State gained national and international social movement momentum only when the Dongaria Kondhs Indigenous Peoples joined anti-mining resistance movements with the local communities (Borde and Rasch, 2018). Not all facets of dissents are 'successful' and some culminate without leaving any impact yet various factors play a role in the success or failure of movements to produce social and policy change.

This paper posits social movements from two discourses, the first is what Habermas (1987) suggests resistance occurs when people defend and reclaim their livelihood and traditional practices that are colonized, while the second is that weak democracy is equated to an increase in the likelihood of armed conflicts. The discourse to dilute or strengthen could be understood from the Foucauldian approach, of exercising power, using, and producing knowledge and truths for influencing groups or individuals to act in certain ways (see Foucault, 1986).

To sum up, the two concepts of the rights-based approach used here, FPIC and social movements, are on the opposite continuum (as seen in Fig. 1). Using this framework, the case studies could shed light on the social movement scenarios such as demand for fair distribution of natural resource revenues, recognition of collective identities, undoing of histories of environmental injustice on Indigenous Peoples, and participatory decision-making in mining management and forest governance. While factors such as laws and policies, distribution of rights and resources, and the socio-political environment shape the impacts of FPIC for stakeholders without legal rights (Mahanty and McDermott, 2013). These two rights-based concepts – one is bottom-up local self-initiated, and the other is international-driven voluntary norms – make it a powerful lens to map the interconnectedness of local democratic decentralization with that of extractives and environmental degradation, and dispossession of Indigenous peoples from their customary land across the globe.

3. Data collection and methods

3.1. Study area

The study areas are India's central-eastern states of Chhattisgarh, Jharkhand, and Odisha with over 35% of forest cover and the highest mineral resources, in particular coal, iron, and bauxite (Ranjan, 2019; World Bank, 2019). Fig. 2 shows the map of these three contiguous

³ <http://www.fao.org/3/a-i6190e.pdf>

⁴ <https://www.mining.com/community-opposition-forces-newmont-abandon-conga-project-peru/>



Fig. 2. Map of the study areas. Credits: Wikimedia Commons.

states that has the largest number of Indigenous people living in and around biodiversity-rich forested landscapes. The study areas were selected on the criteria that either ongoing or past mining activities exist in forested landscapes; some form of social movements against mining; the highest number of Indigenous peoples (Vth Scheduled Area⁵), including those belonging to Particularly Vulnerable Tribal Groups (PVTGs)⁶; and different forms of mineral extraction, mining size, and mining company. Two of the three districts of the selected study areas have over 50% Indigenous population (Census of India, 2011).

Coal, iron ore, and bauxite are three key minerals extractions in the study areas. Bauxite, an ore containing aluminium oxide, is the only commercially used source of aluminium in the world. Iron-ores are rocks and minerals from which metallic iron is extracted, while coal is extracted directly. Open-pit mining, a method to extract rocks and minerals from the earth's surface, is used commonly in the study area because it is economically profitable to companies but has an adverse impact on the environment.

3.2. Data and method

Primary data for three ethnographic case studies were collected by the author between 2016 and 2018. A case study is an established social science research design for generating an in-depth, multi-faceted understanding of a complex issue in its real-life context (Crowe et al., 2011). The fieldwork method included observation, four focus group discussions (henceforth, FGDs) using historical timeline and mapping, and interviews with village council or Gram Sabha members (men,

women, and youths = 54) and members of the decentralized village level elected governance or Gram Panchayat (9 representatives), 4 senior civil society staff, and forest officials (3 forest Beat Guards, 2 Range Forest Officer, and one Principal Chief Conservator of Forests), and two states mining company's representation. The Forest Department officials and the mining company representatives were interviewed to gain a better understanding of whether and how forests were allocated for mining and if any strategy to 'involve' those affected by mining.

The author spoke local languages with the interviewees, and in addition, received the support of local volunteers in the field to double-check the translations and logistic arrangements such as taking ethical permissions and appointments. Audio-visual recording of the data collection was done with the consent of the informants and the material was used to produce a short film about mining by the author. A pilot study helped to formulate a set of key open-ended questions such as what was the process for mining companies to acquire extractive rights; how local communities participate in the decision-making process – who were included/excluded; what were the factors that incited the communities to resist against mining companies; (how) did they achieve their goal to govern forest and its resources; and what were successes and failures in the social movement process.

Table 1 shows three case studies each representing one mining-affected community from one of the three states and districts. The qualitative analysis helped in synthesizing the data, which is presented here in the form of three case studies. Each case study is a unique representation of an ethnic group, a mineral extracted, the scale of mining, and the mining company. All three case studies provide a common thread for a comparative and complementary analysis of the forested landscape, tribal self-governance, FPIC, and forest-based livelihood. According to Bartlett and Vavrus (2017), the comparative case study analysis allows comparing how similar policies unfold in locations that are connected and socially produced, as well as linkages across scale and cases across time. For ethical and issue-sensitive reasons, the identities of informants are confidential. The next section presents empirical evidence through three ethnographic case studies.

4. Empirical evidence: three case studies from indigenous territories

In 2015, the Indian government introduced the District Mineral Foundation fund, or in brief, the DMF fund. By 2021, the DMF fund had

Table 1
The study area in central-eastern tribal India.

Place	Odisha state	Chhattisgarh state	Jharkhand state
People	Sundargarh district	Surguja district	Chatra district
Scheduled Tribe or Indigenous Peoples	1,062,349	1,300,628	345,800
Scheduled Area	Yes, over 50% Indigenous Peoples	Yes, over 50% Indigenous peoples	No, but has high percentage of IPs
Main groups PVTGs	Paudi Bhuyan	Munda and Pando	Oraon
Mining status at the time of data collection	Paudi Bhuyan	Pando	-
Mining size	On-going	Temporarily closed	On-going
Mineral extraction	Small/Medium – Scale Mining	Large Scale Mining	Small-Scale Mining
Mining company	Iron-ore	Bauxite	Coal
	Rungta Mines Ltd.	Bharat Aluminium Company Ltd. (BALCO)	Central Coalfields Limited (CCL)
Resistance by local Indigenous Peoples	Women and community led resistance	Community-led social movement	Gram Sabha's Pathalgarhi movement

⁵ Tribal populous area subject to special governance directly by the central government

⁶ Within Scheduled Tribe category, PVTG is a government of India classification for groups to improve their overall development.

collected about INR 500 billion as mandatory contributions from mining lease holders. The purpose was to drive developmental work in the mining-affected districts and for the well-being of mining-affected people. The DMF fund collections in the country have been the highest in the three mineral-rich states Odisha (INR 130 billion), Chhattisgarh (INR 71 billion), and Jharkhand (INR 69 billion), which are part of the below case studies. DMF was created in each district under the provisions of the Mines and Minerals (Development and Regulation) Amendment Act, 2015. Table 2 highlights the community-based mapping data about the different types of trees, degraded forest land, the trend of ‘cutting’ or timber harvesting, and other land use change in the study sites – based on focus group discussions and transect walks.

4.1. Iron-ore extraction: community protest by Paudi Bhuyan in Odisha

One of the prominent industrial districts of Odisha, Sundergarh has a tropical dry deciduous forest. The study village has about 250 households with predominantly Paudi Bhuyan, which is India’s one of the Particularly Vulnerable Tribal Groups, and Munda Indigenous Peoples. Approximately 750 acres of forestland and 250 acres of Government land were noted, as the community’s traditional land as part of this village. Average farmland holding is about half an acre and most of the villagers did not have formal land titles. The villagers have traditionally managed adjacent reserved forests as the community’s traditional forestland, which is yet to be formally recognized as Community Forest Rights.

According to the FGD (participants included the elected Panchayat leader – a female Sarpanch, and Gram Sabha members i.e., all residents

Table 2
The study area in central-eastern tribal India.

Place Forest Land-use	Odisha state Study village	Chhattisgarh state Study village	Jharkhand state Study village
Diversity of trees	Good biodiversity of the trees: almost 87 species were identified during the transect walk that is useful for livelihood.	Extremely high diversity of trees and tubers: about 100 + tree species listed by the community.	Moderate diversity: roughly 50 diverse tree species were identified of which Mahua (<i>Madhuca longiflora</i>) is highly valuable and in abundance.
Land-use change due to mining	Open mine pits: Elephants enter the village to use the water in the open mining pits and destroy the family farm crops of the villagers	Wastewater from coal company polluted drinking water and making farmland infertile	Commons and forest land are denuded – about 5 ha
Type of house	Cement and brick house with asbestos roof no piped water	Mainly mud house with thatched roof	Mix of mud and concrete houses with no piped water
Property loss due to mining	Displacement/relocation of the house	Houses damaged	All houses are damaged due to (mine) blasting
Community’s definition of the ‘degraded forest land’	The composition of the forest is affected by mining-number of non-timber forest produce trees are reduced	Mono plantation of Eucalyptus trees	Capacity of the trees to regenerate has reduced – due to mining induced change on forest land
Degraded forest land in hectares	4 ha (of 19 ha of demarcated forests)	20 ha (of 44 ha of demarcated forests)	2 ha (of 8 ha of demarcated forests)

of the village over 18 years), the historical timeline suggests between 2008 and 2009 during the Gram Sabha meetings there were discussions about the land acquisition by Rungta Mines company. It was regarded as FPIC by the authority, but the respondents explain it was a one-sided decision. The company had financially influenced some of the key Gram Sabha members by passing a haste resolution in the Gram Sabha for land acquisition. However, the Sarpanch reconvened another meeting to disregard the previous resolution because most of the villagers were neither present nor consulted. About 100 acres of private land, belonging to the village is claimed by the company to have been acquired through the Odisha Industrial Infrastructure Development Corporation. The mining company claims to have made payments to all families. However, interviewees mentioned that the payment of about US\$110 per decimal (100 decimal is equivalent to one acre) was made to about fifteen households, but only for the fraction of the land that was acquired.

The compensation was not based on mutual agreement, and people eventually received less compared to their total land loss to the mining company. About another fifty households were denied any form of compensation because they resisted giving away their land. It worked to the benefit of the company as these households lacked formal land tenure documents. Intra-household conflicts became higher because the company lures one male per household to sign forged documents thereby leaving no scope for other male members (father or brothers) to contest their land rights or claim their compensation. One of the young men, who was taken into police custody in the middle of the night, mentioned: “I protested the Rungta mines due to timber logging in forest area and private land acquisition. A false police report was filed by company officials to damage my community’s Indigenous identity. I was detained for a week and my family had to pay for bail. I have no land nor any source of livelihood. They made me as an example to create fear so that no other villager resists the mining company’s activities.”

Despite Panchayat’s demand for withdrawal of the resolution, the mining company over the next five years was granted land acquisition both from private and community forestland with the support of local elected politicians and government officials. There were no FPIC consultations in the village by the company or by the government authorities. Around 2015, village-level resistance against the mining company and its iron ore activities began against mining-induced deforestation, and land acquisition. The district government-imposed Section 144 in the village. It is a constitutional provision that allows government authority to prohibit any public gathering in the jurisdiction area and any resistance by a person will be imprisoned during the curfew. The imposition meant that villagers could not gather to protest. The lack of individual land tenure rights and lack of Community Forest Rights recognitions that were claimed under the Forest Rights Act made the position of the villagers weak.

During the curfew period, the Rungta Mines began the construction of boundary walls that ran through the villages. An interviewee, a Paudi Bhuyan woman, who broke down in tears said, “We are illiterate. We, women, protested mining-related air, water, and land pollution, and against logging – forest clearance for mining. Our water streams are red in colour due to iron-ore. The Rungta mines threatened us that if we (and the woman Sarpanch) do not stop our movement then they will not spare us. We are Adivasis, dispossession from our forestland that provides a basic supply of daily fuel wood, and wild edible forest food would mean losing our tribal identity.” Labourers for the boundary wall were recruited from within the villages, those who were in desperate financial need, which according to the FGDs, was an attempt to polarise the community.

Mining-related drinking water pollution, according to villagers, has caused ailments to their children and livestock. At the time of data collection, the boundary wall of over five meters high was almost ready and the iron-ore extractive activities were fully functional. “It is a tragedy that some of the Indigenous youths have been hired to construct the wall – the mining company has fragmented the social fabric of

Indigenous Peoples by putting them against each other. There has been no compensation to the affected families though the district authorities have assured DMF fund is allocated for our village development. Lack of FPIC by authorities means we have no idea how that fund will be used”, said one of the senior civil society activists working in the region. The remaining forest was inaccessible for collecting wild edible nutritious food pushing the hardship on women to ensure food security for their families and adapting to mainstream crops. The Paudi Bhuyan women expressed in the FDGs that they fear about their men being implicated in a false case for resisting the mining company. They also fear losing their Indigenous hill-people identity due to such indirect displacement over the years. Due to mining, the traditional equitable gender roles in the community are secluding younger women to adapt to mainstream traditional household duties.

According to the villagers, three households’ farmland without consent was included inside the mining boundaries. Due to the boundary wall, they were not allowed to access or harvest the crops. The company claims that both farmland and common land in the village and forest area are part of their legitimate acquisition. On the other hand, villagers protested that they did not give the company any consent over their traditional rights. The Gram Sabha had challenged it as a case of illegal land acquisition in the court on the basis that the tribal lands that are being acquired by private companies or state-owned industrial infrastructure development corporations are in direct violation of the provisions of the Fifth Scheduled Area. With no legal support, the protest led to an informal collective decision that through the Gram Sabha, forest self-governance will be initiated to avoid any further forest and land grabs by the mining companies and claim compensation for mining-affected families.

4.2. Bauxite extraction: resistance by Munda and Pando in Chhattisgarh

In the northern part of Chhattisgarh, the Surguja district has over 50% of forest cover. Timber is an important part of the economy, and for the local community’s livelihood, it is non-timber forest resources including wild edible forest food that plays a crucial role. The study village is in the hill station of Manipat block and the three Indigenous Peoples are Pando, Munda, Kanwar, and Korwa. The United Nations Framework Classification puts India’s resources of bauxite at about 3480 metric tons, which is five percent of the world’s total. Roughly 50 million tons of bauxite reserve exist in the Surguja district. The history of BALCO’s bauxite mining in the study area dates the back to early 1990 s when the study area was part of another state, Madhya Pradesh. BALCO or Bharat Aluminium Company Limited, which was an Indian government-owned under the Ministry of Mines.

The FGD describes that BALCO began in about 600 ha of land leased for two decades for bauxite excavation. Over thousands of trees were cut in the study village, and for over a decade many families were displaced due to land dispossession. A 60-year-old Korwa elder explains “Five years ago, my land was not part of the lease, but due to blasting to excavate bauxite, it created cracks on my farmland, and my crops were destroyed due to pollution. The air became unbreathable, and we had to leave our land and migrate for work. Without our consent, the contractors took our land for mining. Our land was left useless; BALCO did not give us any compensation.” The FGD highlights that the way consent was taken from the villagers do not highlight the true spirit of FPIC, except that contractors (falsely) promised all affected households will be given employment for mining activities, which was not the case. Young men continue to migrate to the district’s capital city to find work as daily wage laborers due to the loss of farmland and forest-based livelihood sources due to mining-induced deforestation.

According to the District-level Forest Officer, the mining company would reforest the bauxite mining-affected villages, and the DMF fund will be used for village development. On the ground, none of the respondents had heard about the DMF fund. The protest by the youths and women in the study area began in 2016. The triggers for protest were

many: BALCO’s abrupt decision to restore a small patch of land that was not affected by the mining activities, the choice of Eucalyptus monocrop species for afforestation in common land meant for grazing, failure to refill the open-pit bauxite mine leading to deaths of domestic livestock falling in the deep trenches, cracks and damage to houses and land due to mining-related blasts, deforestation of non-timber forest trees, air and water pollution-related health hazards, and loss of forest and land-based livelihood. The community protest was of non-violence acts such as collecting all bauxite stones and using them as fences around their farmland to stop the mining company’s encroachment.

The Eucalyptus trees, according to the Gram Sabha, yield no non-timber food and livelihood products as compared to their high biodiversity forests used to provide. The FDGs described blasting to extract bauxite stones has led to several cracks in their mud house and concrete walls of the schools and only maternal healthcare. The company’s representation during the interview mentioned that the DMF fund might fix all the problems of the villagers. However, none of the villagers have heard about the DMF fund or similar provisions that will support the damage.

The fieldwork observation walk helped to identify the demarcation study conducted by the mining company using drones and field surveys for new land acquisition on private farmlands. The demarcation marks in the potato and millet fields of the villagers were visible with yellow wooden sticks. Youths of the study area had protested the further survey but have received threats from the contractors and middlemen. The fear of the death news of one of the Panchayat leaders in a neighbouring village, who had received threats for his protest mining, had made the study area villagers vigilant and work collectively. According to one of the youths, “We were cheated – they (BALCO) promised secured jobs to tribal youths, instead they recruited outsider non-tribal people. The stones from blasting often fall near our houses injuring our children and women. We were promised after extractive activities our land will be leveled with good soil before returning to us, but that has not been the case.”

Youths have protested in front of the mining company demanding unfair employment, and discrimination against Indigenous communities for employing and settling non-tribal people in the villages. The protest also began with men and women raising collective voices in the Gram Sabha to stop the company’s plans to expand bauxite production. Though the mining contractors did not receive a fresh permit, the contractors were continuing to do extractive activities by extending beyond permitted areas acquired through earlier land acquisitions. The families who got compensation for land acquisition found that the mining company continued to extract illegally. The panchayat was ineffective to intervene against the corrupt contractors who were illegally extracting going beyond the original legal land boundary plan. As for the forestland, the Forest Officers interviewed defended that the contractors of the extractive company were not aware of the original forest boundaries for excavation. Further, the forest official clarified that the Eucalyptus plantations by the mining company and neither the department nor mining-affected villagers were involved in the decision-making process.

During the second round of the fieldwork phase, the communities collectively refused to give consent for the expansion and/or continuation of bauxite mining in the area. Although no one in the village read about FPIC guidelines nor it was conducted by the mining company, the protesters were demanding the exact values of FPIC. The protest had gathered the attention of local civil society who supported and voiced the need to first address the environmental (soil, water, and air pollution), Indigenous rights violations, land and forest rights, and funding for village development. In 2017, at the time of fieldwork, local protest forced contractors to terminate extraction activities and the mining company became non-functional.

4.3. Coal extraction: self-governance movement by Oraon and Mundas in Jharkhand

Jharkhand's Chhatra district is the heart of India's future coal mining and is slated to be Asia's biggest coal mine. The study area has about 170 households mostly Oraon and Mundas Indigenous Peoples. The biodiversity-rich tropical forest provided an additional source of livelihood for the Oraon. Mahua is the main non-timber forest produce that villagers have been harvesting as part of their traditional access to community forestland. The forest management committee formed under the Joint Forest Management Programme in the 1990s is no longer active. However, the villagers, both men, and women take turns patrolling the forest area as a self-initiative to avoid illegal logging.

Central Coalfields Limited (CCL) is the main coal mining company among many other subsidiary mining companies operating in the region. The road to the study area is well maintained to ferry heavy trucks transporting coals. According to the CCL representative, the open pit mine yields high revenue and generates profit for the country. The representative mentioned, "A little sacrifice by Indigenous communities for the welfare of the nation is important. Deforestation for the development is essential." An Oraon woman interviewee showed her fishpond and completely polluted farmland due to wastewater without treatment released directly by the mining company. This was the first trigger of protest in the study area around 2014.

When the company did not stop the wastewater, many villagers began to lose their fishponds, and source of drinking water in addition to soil degradation of farmland caused by coal mining. Oraon Indigenous women's protest group decided to lock the company's gate and took turns protesting day and night. The women's protest group demanded that mining companies should not release the wastewater on their farms. Accepting their demand, the mining company offered to provide free drinking water and to install a water treatment plant to treat its wastewater. In 2016, at the time of data collection, women mentioned that the company had installed wastewater treatment, but they are still waiting for the drinking water supply. No compensation was paid to the villagers for the loss of fish, pollution of water and land, and destruction of houses due to mining-related blasting. The protest by women has led to some positive outcomes.

The Panchayat of the study area made it mandatory for daily patrolling by one person (male or female) from each household. This trigger of self-governance took shape in the Pathalgiri movement, wherein a stone with the inscription of Panchayat's Extension to Scheduled Areas Act is displayed at the entrance of each village. This non-violence protest was adopted from the neighbouring state and the aim was to announce self-governance by the community. According to villagers, the Pathalgiri protest erupted after the forest department officials began marking the young trees, which implied it would lead to felling, followed by giving a lease to the mining company. The fear of being unable to reverse the process, the Pathalgiri protest emphasized the need to invoke, implement and recognize the existing Panchayat Extension to the Scheduled Areas (PESA) Act of 1996 to assert tribal self-governance to manage the landscape and its resources. The PESA Act of 1996 ensures the provision that it is mandatory to consult the village Gram Sabhas before making any land-use change, forest diversion, and making the acquisition of the land for development projects that includes extractive resources. The forest official of the study area agreed that collective forest rights titles were not yet given to the community but justified that it's because the community's claims have been rejected due to a lack of proper documentation.

On contrary, the community members during the focus group discussion shared that the Forest Department has cleared rights for the mining company in the same area where traditional collective forest rights were claimed. The community refused the mining company to enter their forest without their consent and refused land acquisition of farmlands. Fear of mining-induced deforestation is very high in this study area because the community identifies itself with nature. Every

Oraon family, according to interviewees, has a family name that reflects either the name of an animal such as a tortoise or rabbit, or the name of local trees. "Our tribal and ancestral identity is deeply rooted in the family name, and we worship our family namesake animal or tree. With mining-induced deforestation, we will lose our identity and our forest-based livelihood. Why Adivasis, original inhabitant, and guardians of the forest must prove our 'forest citizenship' via legal documents while mining company comes to make a profit by deforestation, and extractive activities that are polluting yet they are openly welcomed!"

In 2016–17, the Pathalgiri movement created a stir and social media made it viral nationwide. According to the respondents, the political and violent turn of the pathalgiri left them back to square one of lacking decentralized governance. Tribal self-governance, according to villagers, pushed away new entrances of coal mining companies, stopped the felling of trees marked by the forest department, and ensured the coal ferrying heavily loaded trucks paid compensation for any road accidents of livestock. During the fieldwork period, the villagers received a warning that they will be booked under 'sedition' charges for the Pathalgiri movement and claiming decentralized governance.

The government officials agreed that the DMF has not yet been implemented in the study area, but the fund has been used in the neighboring areas for afforestation – mainly timber and eucalyptus trees. The villagers did not know about this diversion of funds for afforestation in the name of 'ecological restoration'. None of the interviewees have heard of the existence of the DMF fund nor knew that mining-affected families are entitled to compensation. The group discussion explained that the mining company tried to polarise the tribal collective action by settling non-tribal communities and offering them mining jobs. The company regularly showed Adult-rated Bollywood films to youths and provided alcohol to divert them from their families, and Indigenous culture such as Sarhul – a festival to acknowledge mother earth, particularly Sal trees. The villagers through the Pathalgiri movement were resisting such 'free events' of the mining company contractors. Towards the end of the fieldwork phase, villagers were beginning to distance themselves from the movement due to fear of being jailed. For many, resisting mining companies was a double-edged sword – losing their land rights, but also the negative image of the movement left them disillusioned.

5. Discussion

In developing countries including India, rural and Indigenous communities' livelihood is dependent on nature-based sustenance, and land for small landholders is the primary asset for their livelihood. Patil et al. (2020) show rehabilitation and resettlement methods used for land acquisition are dominated by monetary compensation which is not a preferred option of smallholders in India. This corroborates with the case study findings and strengthens that many Indigenous communities are vulnerable to external influence on land-use change particularly because these communities lack formal recognition of their traditional collective and individual forest and land rights.

5.1. Environmental (in)justice and living with fear by indigenous defenders

In the Global South, Indigenous communities-led social movements have intertwined human rights and environmental justice. Through the lens of Indigenous knowledge, environmental justice is about all relations of human-nature connections. For Indigenous communities in this study, social movements were a natural reaction to seeking environmental justice for mining-induced deforestation that has led to the degradation of farms, non-timber forest products affecting their livelihood sources, and polluted air and water bodies. A comparison between the three cases shows just environment for minimum well-being was a common ground for demanding justice, while forest and land acquisition were the trigger factor for social movements.

Democratic participation and access to knowledge have been restricted in all three cases, which resulted that the Gram Sabhas mobilizing support for the social movements. This bottom-up approach without any external support makes the struggle of Indigenous Peoples in the case study area like many other communities across the globe. In Jharkhand, the villagers invoked the provisions of the Panchayat Extension to the Scheduled Areas (PESA) Act of 1996 and erected the stone – or Pathalgiri movement – to discuss and debate whether coal extraction in the forest area is allowed, and how the resettlement and rehabilitation or restoration of forest land be done. Yet, the state authority-led narratives that the social movement was externally driven by an insurgency of the group of rebels, left constant fear among these environmental defenders. The narratives became stronger when some incidences of such rebel connections were found in other villages, which diluted the environmental justice effort by the Gram Sabha of the study village (See also Singh, 2019). In Jharkhand, compared to the other two case studies, Indigenous women's protest demanding clean water, despite lack of support from the state authorities showcases that the gendered dimension of social movement might have a positive impact, albeit with risks of being abused.

Indigenous women as environmental defenders suffer the most, as seen in the Odisha case. The Indigenous women protested the construction of a boundary wall by the mining company and the woman Panchayat leader's demand for FPIC was initially seen as meek. When their resistance continued the mining company pursued authorities to implement Section 144 – India's colonial-era law – to prohibit the gathering of five or more people, holding a public meeting, and imposing a curfew in the village. The other tactic used by the mining company was to (wrongly) accuse and imprison the men, often the breadwinner of the house. The collective fear of Indigenous men and women defenders when turns into individual household fear that questions the sustenance of their livelihood, the environmental justice takes a backseat, and instead resources are drawn to collect evidence to prove not guilty. The case studies highlight that when the villagers began a resistance against the mining company, most of them were unaware of the challenges, but were willing to go to distance to defend their environment and land rights. The fear of being falsely accused or being abused – either collectively or individually – was the key factor for the defenders to acknowledge that land-use policy and legal instruments would favour those in power because of corruption. The corruption – that is subtle in-between back-channel negotiations – though was not examined in this study but was reflected through the challenges communities faced in defending their territory and the anti-corruption agenda was regarded as part of their protests. In social movement literature on peasant resistance, fear is an emotion that is associated with inhibited collective action but could also be a weapon of the weak (Scott, 1990). In the three case studies, living with fear has become a norm for the Indigenous communities who face a double-edged sword – either by agreeing with the mining company and state's agenda of land acquisition or by showing resistance against them – the outcome is a lack of land governance.

5.2. Collective consent or bureaucratic consent?

The FPIC was initiated for collective consent, but it could be used to channel rebellious tensions into 'constructive' negotiations mediated by a bureaucratic procedure that affirms state and corporate organization processes, and agendas (Dunlap, 2018: 91). It can lead to a 'bureaucratic trap', which is a form of colonial control, often by the government, to manipulate and control the process in a way it sees acceptable because often it only consults politicians and other people who already agree with the project (Ibid: 100). Using the Niyamgiri case, Choudhury, Aga (2020):70, likewise argues that consent provisions are derailed by 'bureaucratic sabotage' due to the power of corporations and state officials that control and manipulate the movement and circulation of documents through different tiers of government. One of the biggest

land conflicts in India's Niyamgiri hills wherein Vedanta's attempt to mine bauxite in partnership with Odisha Mining Corporation was faced with resistance from over 100 villages of forest-dwelling Indigenous Peoples (see Kumar, 2014; Seetharaman, 2018). There the Indigenous communities managed to halt the project because of the historic apex court ruling that gave power to the Gram Sabhas to decide whether to give clearance to the mining project. Unlike Niyamgiri, the affected villages of the three cases presented here failed to get legal support leading to an advantage for the extractive companies.

In the case study villages, FPIC was conducted as a bureaucratic trap because villagers were deceived by misleading information, and the authorities used a coercive approach by imposing a curfew to silence those declining to consent to mining activities. As per the rule, FPIC is the crucial step to secure before the planning for extraction activities and in both the cases of Odisha and Chhattisgarh, the FPIC was conducted albeit without the collective consent of most of the Gram Sabha. Such (mal)practices are not limited to the Global South countries but are a strategy for corporates across the globe. For example, empirical evidence corroborates with the case of Swedish paper mining companies that project pro-human rights convictions, but in practice, they fail to respect FPIC (Moritz and Morit, 2019).

The decision-making power for allocating forest restoration and afforestation funds was solely managed by the state authorities without the consent of the Indigenous communities. On paper, the mining company had completed the land restoration while on the ground it was contested by the communities – first, the percentage of restoration work claimed by the authorities was minuscule to the land mined, and secondly, excluding the Gram Sabha decisions for land use for restoration left the villages without any common grazing land or reforestation was done on farmland. Such appropriation and misuse of compensatory afforestation funds meant for mining-affected areas corroborates with other studies. For example, in India, contesting claims emerge that the compensatory afforestation fund has been diverted due to the state governments' unavailability of land for restoration and other activities (Sharma, 2019).

5.3. Development of narratives and polarization to denounce social movements

What promotes or hinders Indigenous Peoples' rights-based approach – FPIC or social movements – for defending their traditional forest land rights depends on what are the resources and who is at the stake.

One approach that worked well with the state and mining companies is to use the development narratives and polarise the community. The development narratives to counter the social movements are two folds. The first narrative promotes that mining is in the interest of the nation/region's development and those who resist are anti-development and have connections with violent insurgent groups. The second dimension emerges from sustainable re-development – the narrative that Indigenous communities are reimbursed or rehabilitated, and that reforestation (mono plantations) restores the landscape. These undermine the core of bottom-up social movements – demanding implementation of the country's progressive policies on village-level self-governance and the impacts of mining-induced alteration of soil profiles, contamination of drinking water and local streams, damage to houses, clearing of bio-diverse rich forests, and loss of Indigenous people's livelihood. Narratives on pro-development perpetuate myths that the Indigenous communities oppose mining due to their traditional way of living.

These narratives, as indicated in three case studies, diminish the role of collective and individual Indigenous identity, but also Indigenous Knowledge Systems that balance their human-to-human and human-to-nature relationship. Polarization is a form of segregation that divides the communities either based on income, religion, ethnicity, gender, social, or political issues. The informal role of mining contractors in mobilizing youths to gain their approval for mining activities, which the

communities fear in the long run has implications of assimilating them with mainstream culture alienating them from Indigenous identity and forest land. Indirect polarizations were also in the form of recruiting a few villagers as daily-wage laborers for the activities that the Indigenous communities were resisting. Such polarization supports creating and proving the narratives and, in the process, weakens the social mobilization to claim forest and land governance and rights. This narrative approach stems from Western society's view of the natural world as a commodity, property, or a 'resource', which contradicts Indigenous understandings regarding the Earth as alive and imbued with spirit (McGregor et al., 2020: 35). The empirical evidence from social movements and resistance in this paper attests that Indigenous perception of habitat – protecting the Earth's biodiversity including the sub-soil minerals – fails to translate in policy implementation of forest and land-use change.

6. Conclusions

An increase in social mobilization and conflict, particularly in Indigenous territories happens with growth in investment in extractive industries and changes in land use (Bebbington et al., 2008). In India, the ownership of minerals lies with the state and is one of the progressive countries in the world with laws and policies on mineral extraction, land-use change, forest rights, and local self-governance to ensure Indigenous traditional rights. This paper identifies that the national policies and international voluntary guidelines (e.g., FPIC) rarely get translated into practice in a meaningful way in Indigenous territories. This has roots in the way Indigenous peoples view the natural world as 'life-giving' (see Oskarsson, 2017) contradicts those of state authorities and mining companies whose primary intention is 'development' from an economic benefit from the mineral extractions. This study recommends future research should highlight different forms of negotiations behind the scenes that hinder (or promote) the local communities' landscape governance. However, the author would like to mention that the topic of corruption is sensitive in the mining sector and should be investigated by considering all security-related risks. Village-level non-violent social movements will persist when land-use policies deliver inequitable outcomes for Indigenous communities living in and around forests, despite fear. Inequitable policy outcomes due to land conversion of native vegetation, over-exploitation of natural resources, and short-term economic benefits over human rights and well-being will only mean more resistance from Indigenous communities (see also Estrada et al., 2022).

One of the key policy recommendations, as a bottom-up approach, suggested by the Indigenous communities of the three case studies that would be applicable across the globe is summarized as: 'any disturbance to our (Indigenous) land and subsoil extraction (bauxite, iron-ore, or coal), deforestation, and loss of biodiversity for mining without consent of local communities should be seen as a path to the inequitable world'. Indigenous Peoples consider themselves to be the 'red thread' closely maintaining the ecological balance of their habitat, but also the sustenance of languages, wild edible forest foods, beliefs, and immense Indigenous Knowledge Systems that hold unique information of diverse natural elements. On paper, World Bank's Executive Summary acknowledges creating a supportive enabling environment for forest-smart mining principles – including secure tenure over forests and forest resources that safeguards and respects Indigenous and other customary rights, to support long-term forest stewardship and sustainable use (World Bank, 2019:110). In practice, making extractive resources as 'forest-smart mining' demands what this paper makes a concluding statement: equitable forest and land-use policies for Indigenous Peoples should be rewritten with the active participation of Indigenous Peoples and local communities and implemented together with them for sustainable development.

Data availability

The data that has been used is confidential.

Acknowledgments

The author is grateful to all Indigenous Peoples for sharing knowledge, other key respondents, and local partners who supported in conducting fieldwork. The author presented the preliminary idea as a conference paper at the International Association for the Study of Commons (IASC) Conference 2016 in Bern, Switzerland, which helped shape this article. This ethnographic research was self-funded as part of the author's film on mining, Kabza, which was directed and produced for Landing Together films in 2018. The author is indebted to two anonymous reviewers for their valuable comments and suggestions that benefited this paper.

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